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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/389,826	09/03/1999	HANS U. SCHROEDER	PHN-17.073	5932

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

NADAV, ORI

ART UNIT PAPER NUMBER

2811

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/389,826

Applicant(s)

SCHROEDER ET AL.

Examiner

ori nadav

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ker et al. (5,572,394).

Ker et al. teach in figure 9 a semiconductor device having an ESD protection means being an SCR and a gated electrode, provided in a surface area (P-SUBSTRATE) of a first conductivity type having a single well (N-WELL) of a second conductivity type, wherein a surface zone (P+) of the first conductivity type is forms a first anode and cathode area of the SCR element, the surface area has a surface zone (N+) of the second conductivity type, noted as a first zone, situated remotely from the well and forming a second anode and cathode area of the SCR element, the gated diode containing a gate insulated from the surface area and a highly doped (N+) second conductivity type surface zone aligned to the gate, noted as a second zone, the second zone partly overlaps the well of the second conductivity type, wherein the second zone stretches out only along a part of the periphery of the well (along the left part of the well), whereas the first zone is provided along at least another part of this periphery which is free

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from the second zone (along the right part of the well), and an anode and cathode of the SCR element in the first zone are not shielded from one another by the gated diode.

Regarding claim 2, Ker et al. teach in figure 11 the gate of the gated electrode substantially stretches out only along the part of the periphery of the well along which also the second zone stretches out.

Regarding claim 3, the gated diode having a further surface zone (N+) of the second conductivity type deposited in the surface area of the first conductivity type and forming the other of the source/drain zones of the transistor, wherein the first zone being situated at a shorter lateral distance from the surface zone provided in the well than the further surface zone.

Regarding claim 4, although Ker et al. do not explicitly disclose a further zone and a first zone form a second conductivity type zone this feature is inherent in Ker et al.'s device, because Ker et al.'s structure is identical to the claimed structure.

Regarding claim 5, the first and second conductivity types are p and n conductivity types, respectively, wherein the first zone and the first conductivity type zone in the well form the cathode and anode of the SCR element, respectively.

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Regarding claim 6, Ker et al. teach the well of the second conductivity type is arranged in the form of a longitudinal zone, the surface zone of the first conductivity type is formed by a longitudinal zone in the well of second conductivity type which well has in its center an opening at the position of which a highly doped zone of the second conductivity type is provided which forms a contact area for the well of second conductivity type.

Regarding claim 9, Ker et al. teach the cathode of the SCR is provided along the part of the periphery of the well of the second conductivity type that is free from the at least two gates.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ker et al. (5,572,394).

Regarding claims 7 and 8, Ker et al. teach substantially the entire claimed structure, as applied to claims 1 and 6 above, except forming the gated diodes on the right-hand end of the longitudinal zone. It would have been obvious to a

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person of ordinary skill in the art at the time the invention was made to form the gated diodes on the right-hand end of the longitudinal zone which comprises the insulated gate and the highly doped second conductivity type surface one which partly overlaps the well of the second conductivity type, wherein the gated diode are arranged as a MOS transistor having a further zone of the second conductivity type in Ker et al.'s device, since it is well within the skills of an artisan to determine the location of the two gated diodes, subject to routine experimentation and optimization.

Response to Arguments

3. Applicant argues that Ker et al. do not teach a gated diode containing a gate insulated from the surface area and a highly doped second conductivity type second zone aligned to the gate, the second zone partly overlaps the well of the second conductivity type, wherein the second zone stretches out only along a part of the periphery of the well, whereas the first zone is provided along at least another part of this periphery which is free from the second zone. Applicant further argues that figure 4 of the claimed invention depicts a second zone stretches out only along a part of the periphery of the well, and a first zone is provided along another periphery of the well which is free from the second zone.

Figure 9 of Ker et al. depicts a gated diode containing a gate insulated from the surface area and a highly doped second conductivity type second zone

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N+ is aligned to the gate. The second zone N+ partly overlaps the well Rw3 of the second conductivity type. Since the second zone overlaps only part of the well Rw3, it stretches out only along a part of the periphery of the well (in contrast to stretching along the entire periphery of the well). The first zone (the N+ zone located along the right part of the well), is provided along at least another part of this periphery which is free from the second zone (the right part of the well is free from the second zone). The broad recitation of the claim does not preclude the second zone from stretching out only along the left part of the periphery of the well, whereas the first zone can be provided along at least the right part of the periphery of the well which is free from the second zone.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

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the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703) 308-8138**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached at **(703) 308-2772**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

A handwritten signature in black ink, appearing to read 'Ori Nadav', written in a cursive style.

O.N.
August 8, 2003

ORI NADAV
PATENT EXAMINER
TECHNOLOGY CENTER 2800